

AMENDMENTS TO THE CLAIMS:

If entered, this listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A color imaging system for compensating a color response, the system comprising:  
an array of pixel sensor elements;  
a color filter including a plurality of color filter components organized in a predefined pattern,  
the color filter overlaying at least a portion of the array, wherein said pixel sensor elements include at least one element associated with a first color filter component, at least one element associated with a second color filter component, and at least one element associated with a third color filter component;  
a first analog compensation unit coupled to the at least one element associated with the first color filter component, said first analog compensation unit adapted to modify a readout of the at least one
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element associated with the first color filter component;

20                   a second analog compensation unit coupled to the at least one element associated with the second color filter component, and second analog compensation unit adapted to modify a readout of the at least one element associated with the second color filter component;

25                   an analog summing amplifier coupled to two elements associated with the third color filter component and outputting an analog sum of said two elements;

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30                   a third analog compensation unit coupled to said analog sum the at least one element associated with the third color filter component, said third analog compensation unit adapted to modify a readout of said analog sum the at least one element associated with the third color filter component; and

35                   an array controller adapted to control the readout of the elements associated with the first, second and third color components.

2. (Canceled)

3. (Original) The system of Claim 1, wherein at least a portion of the array elements arranged in a plurality of rows and columns.
4. (Original) The system of Claim 1, wherein the array controller is adapted to control the readout of a plurality of pixel sensor elements in parallel.
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5. (Canceled)
6. (Original) The system of Claim 1, wherein the analog compensation units are gain amplifiers.
7. (Original) The system of Claim 1, wherein the analog compensation units are programmable gain amplifiers.
8. (Original) The system of Claim 7, wherein the programmable gain amplifiers are implemented as a separate stage.
9. (Original) The system of Claim 7, wherein the programmable gain amplifiers are contained within a pixel circuitry of the array.

10. (Original) The system of Claim 7, wherein the programmable gain amplifiers are within a plurality of column buffers.

11. (Canceled)

12. (Original) The system of Claim 1, wherein the color filter components include the colors of red, blue and green.

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13. (Original) The system of Claim 1 wherein the array controller causes an independent readout for a set of even-numbered rows and an independent readout for a set of odd-numbered rows to control color compensation or each color component.

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14. (Original) The system of Claim 1, wherein the array controller causes an independent readout for even-numbered columns and an independent readout for odd-numbered columns to control color compensation of each color component.

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15. (Original) The system of Claim 1, wherein the array controller causes a plurality of substantially

simultaneous, independent readouts for a plurality of rows and some columns.

16. (Original) The system of Claim 1, wherein the pixel sensor elements from a portion of a charged coupled device.

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17. (Original) The system of Claim 1, wherein the pixel sensor elements form a portion of a complementary metal oxide semiconductor device.

18. (Original) The system of Claim 1, wherein at least a portion of the pixel sensor elements are active.

19. (Original) The system of Claim 1, wherein at least a portion of the pixel sensor elements are passive.

20. (Original) The system of Claim 1, wherein at least a first pixel sensor element is associated with a different color filter component than a second, neighboring pixel sensor element.

21. (Original) The system of Claim 1, wherein the predefined pattern is a Bayer color configuration.

22. (Original) The system of Claim 1, wherein the predefined pattern comprises the colors of yellow, cyan and magenta.
23. (Original) The system of Claim 1, further comprising a micro-lenses layer.
24. (Canceled)
25. (Canceled)
26. (Currently Amended) A method of compensating a color response in an analog domain of an array of pixel sensor elements, the method comprising:  
amplifying an analog output from a plurality of  
elements of a first color component;  
amplifying an analog output from a plurality of  
elements of a second color component wherein two said  
element outputs are summed together prior to said  
amplifying; and  
generating a compensated analog readout of the  
plurality of elements of the first color component.
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27. (Canceled)

28. (Original) The method of Claim 26, wherein the act of generating a compensated analog readout comprises amplifying the analog readout for the plurality of elements of the first color component with a first programmable gain amplifier.

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29. (Original) The method of Claim 26, further comprising determining an optimal level of color compensation for the analog readout of the plurality of elements of the first color component.

30. (Original) The method of Claim 26, wherein generating a compensated analog readout depends on a temperature of the system.

31. (Original) The method of Claim 26, wherein the pixel sensor elements are associated with the colors of red, blue and green.

32. (Original) The method of Claim 31, wherein the array of pixel sensor elements is arranged in a plurality of rows and columns and the act of generating comprises:

generating an independent readout for even  
5 numbered rows;

generating an independent readout for odd  
numbered rows;

generating an independent readout for even  
numbered columns; and

10 generating an independent readout for odd-  
numbered columns, such that at least one element  
associated with a red filter component is coupled to a  
first programmable gain amplifier, at least one  
element associated with a blue filter component is  
coupled to a second programmable gain amplifier, and  
15 at least one element associated with a green filter  
component is coupled to a third programmable gain  
amplifier.

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33. (Original) The method of Claim 26, wherein the act of  
generating comprises generating a plurality of  
substantially simultaneous, independent readouts for  
the set of rows and the set of columns.

34. (Canceled)

35. (Currently Amended) A color imager comprising:

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a set of sensor elements, wherein at least one of said elements is associated with a first color, at least one of said elements is associated with a second color, and at least one two of said elements is associated with a third color;

a first amplifier configured to compensate for said first color;

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a second amplifier configured to compensate for said second color;

an analog summing amplifier coupled to said two elements associated with said third color and outputting an analog sum of said two elements;

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a third amplifier configured to compensate for said third color; and

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an array controller which selectively couples elements associated with the first color to the first amplifier, said array controller selectively couples elements associated with the second color to the second amplifier, and said array controller selectively couples elements associated with the first third color to the third amplifier.

36. (Original) The color imager of Claim 35, wherein the sensor elements are arranged in rows and columns.

37. (Canceled)

38. (Canceled)

39. (Currently Amended) A method of interpolating a color value in the analog domain in realtime, comprising:

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*M. C. Hall*

modifying a first analog signal corresponding to the output of a first pixel element in an imager to color correct the first pixel, the first pixel element used to sense light intensity of a first color; and

modifying a second analog signal corresponding to the output of a second and a third pixel element in the imager to color correct the second and third pixel pixels, wherein the second and third pixel element elements are is used to sense light intensity of a second color and wherein said second analog signal is a sum of said second and third pixel elements.

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40. (Original) The method as defined in Claim 39, further comprising modifying a third analog signal corresponding to the output of a third pixel element in the imager to color correct the third pixel.